

## FIRST RECORD OF *BRACHYCOLEUS THORACICUS* PUTON, 1892 (HEMIPTERA, MIRIDAE) FROM IRAN

SAADI MOHAMMADI, REZA HOSSEINI\* and JALIL HAJIZADEH

Department of Plant Protection, Faculty of Agricultural Sciences, University of Guilan, Rasht, Iran

\*E-mail: rhosseini@guilan.ac.ir, r\_hosseini@yahoo.com (corresponding author)

### Abstract

A faunal study on plant bugs (Miridae) was carried out in the western part of Kurdistan province during 2016-2017. Two species of the genus *Brachycoleus* Fieber, 1858 were collected: *B. thoracicus* Puton, 1892 and *B. lineellus* Jakovlev, 1884. The former species is reported for the first time from Iran and the latter for the first time from Kurdistan province. In this study, a description of *B. thoracicus*, and habitus photographs of male and female *B. thoracicus* Puton, 1892 and *B. lineellus* Jakovlev are provided. The identified specimens were deposited in the insect collection of the Natural History Museum at University of Guilan, Rasht, Iran.

KEY WORDS: Fauna, Iran, Kurdistan province, Miridae, Taxonomy

### Introduction

Plant bugs (Hemiptera: Heteroptera: Miridae) are one of the most species-rich families of insects, with nearly 11,020 described species (Cassis & Schuh, 2012). Among eight subfamilies of Miridae, Mirinae is widely distributed and highly diverse, comprising many species and genera. The genus *Brachycoleus* Fieber, 1858 belongs to the subfamily Mirinae. Species of this genus are large and comparatively broad, males are usually slenderer than the females. Coloration is predominantly red, with orange and yellow tinges, and a black pattern more or less developed. Frons clearly projecting over clypeus. Pubescence yellowish, erect and semi-erect. Sometimes isolated dark hairs occur near the lateral margins of the hemelytra. Calli are small, corium with only two distinct veins. Labium reaching to the middle of mesosternum or in some species [*B. pilicornis* (Panzer, 1805) and *B. caucasicus* (Poppius, 1912)] extending to the mesocoxae. Male genitalia small, endosoma with small and simple spiculum and well-developed dentate plate. Left paramere C-shaped (Wagner & Weber, 1964; Wagner, 1974; Rosenzweig, 1997; Hosseini, 2016).

This study was conducted as a part of research on the fauna of mirid bugs with a focus on the western part of Kurdistan province.

## Materials and methods

Kurdistan province covers an area of 28,235 square kilometers that encompasses 1.7% of Iran. It is located in the west of Iran between the latitude 34°45' to 36°28'N and longitude 45°34' to 48°14'E. This province has different kinds of topology, including high mountains, deep valleys, mountainsides, flat plains and flat and low lands (The General Bureau for Textbooks Printing and Distribution, 2018). Vegetation in the region mostly comprises *Quercus*, *Salix*, *Crataegus*, *Pistacia*, *Prunus*, *Amygdalus*, *Astragalus*, *Acer* and *Apiaceae*, *Poaceae*, *Asteraceae*, *Euphorbiaceae*. The faunal study on plant bugs (Hemiptera: Miridae) was carried out mainly in Sarvabad (35°20'-23'N, 46°14'E, 1200-1419 m a.s.l.) in the western part of Kurdistan province. Sampling was performed twice a week from the summer of 2016 until spring of 2017.

A sweep net was used for collecting samples on vegetation (Fig. 1). Mirids that fell into the net were quickly picked up by an aspirator. Collected specimens were killed with ethyl acetate and dry-mounted on triangular card. Photographs of specimens were taken using a Canon EOS 70D camera equipped with a Canon 100 mm f / 2.8 Macro USM macro lens and 65 mm Meike Macro extension tube. Partially focused photographs (more than 60) were combined in the Helicon Focus image-stacking and processing free software (ver. 6.7.1). Taxonomic keys by Wagner (1974) and Rosenzweig (1997) were used for identification of species. All specimens were deposited at the insect collection in the Natural History Museum at the University of Guilan.

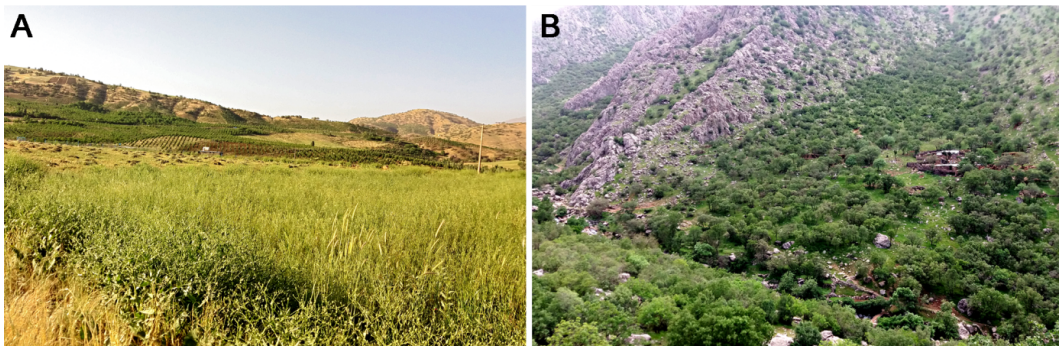


Figure 1. Landscapes of two localities studied in the Kurdistan province. A – Sarvabad, Daraki: Natural habitat of *Brachycoleus lineellus* Jakovlev; B – Sarvabad, Bahram Abad: Natural habitat of *Brachycoleus thoracicus* Puton.

*Brachycoleus lineellus* Jakovlev, 1884 (Fig. 1A, Fig. 2A)

Material examined: Kurdistan province: Sarvabad, Daraki; 1♂, 1♀ (35°20'N 46°14'E, 1419 m a.s.l.).

Host plant: The species has been collected from steppes (Rangeland). In the plant bug website (Schuh, 2002-2013), *Artemisia* sp. (Asteraceae) and *Phlomis* sp. (Lamiaceae) have been reported as host plants of the species (Seidenstucker, 1959).

Distribution: Anatolian species, known from Turkey, Azerbaijan, Armenia, Georgia, Iraq, Syria and Iran (Linnavuori, 2007; Kerzhner & Josifov, 1999).

*Brachycoleus thoracicus* Puton, 1892 (Fig. 1B, Fig. 2 B, C)

Material examined: Kurdistan province: Sarvabad, Zalkah, 3♂, 2♀ (35°23'N 46°13'E, 1196 m a.s.l.), 28.5.2017. Sarvabad, Bahram Abad, 7♂, 6♀ (35°22'N 46°14'E, 1199 m a.s.l.), 28.5.2017.

Because of the imprecise description of the species in the literature, and for clarification of identification, a brief description is provided.

Diagnosis: Body size (♂) 10-10.86 mm, (♀) 9.2-10 mm. Length of body 3× (♂) and 2.8× (♀) as long as width of body. Ocular index 1.43-1.51 (♂) and 2 (♀). First antennal segment in male 0.77-0.91 × width of head. Second antennal segment in male 2.39-2.61 mm. Second antennal segment in female 1.22-1.35 × posterior width of pronotum. Posterior width of pronotum 2 × width of head. Coloration predominantly red, and yellow, usually with black patterns. Head small and wide, shiny, yellow with black markings or black with yellow strip on the edge of the eyes that sometimes extends to the subocular. Antenna black, pronotum reddish brown or red, calli of pronotum black, collar of pronotum yellowish. Scutellum black, sometimes posteriorly red or orange. Clavus red, the inner edge of the clavus along with scutellum sometimes black. Corium red or orange usually with black marking more or less in the central part. Cuneus reddish rarely apex black. Labium short, black, reaching to the middle of mesosternum. Femur black, sometimes with pale spot, tibia yellow and apex black. Tarsi black.

Comment: Compared to the typical *B. thoracicus* described in Wagner (1974) and a specimen from Syria (Aleppo) preserved in the Musée national d'histoire naturelle (MNHN) in Paris (personal communication with Dr. F. Chérot), specimens collected and examined from Kurdistan province are mostly reddish brown without dark patterns on the hemelytra and seem close to the description of *Brachycoleus thoracicus coccineus* Horváth, 1901; however, the rank of *coccineus* subspecies for *B. thoracicus* is no longer accepted by Kerzhner & Josifov (1999) in the Catalogue of the Heteroptera of the Palaearctic Region.

Distribution: This species has been reported from Syria, Iraq and Turkey (Asian part) (Kerzhner & Josifov, 1999; Schuh, 2002-2013).

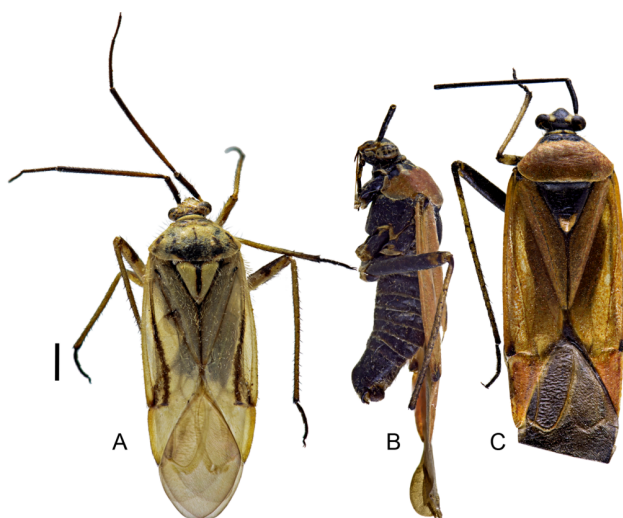


Figure 2. Habitus photographs of collected species. A – *Brachycoleus lineellus* Jakovlev, dorsal view; B, C – *Brachycoleus thoracicus* Puton, lateral and dorsal view. Scale = 1 mm.

## Discussion and conclusions

To date, three species had been reported from Iran, including *B. caucasicus* (Poppius, 1912), *B. lineellus* Jakovlev, 1884 and *B. steini* Reuter, 1877 (Linnavuori, 2007; Hosseini, 2016). As a result of our study, *B. thoracicus* Puton, 1892 is reported for the first time from Iran. Additionally, *B. lineellus* Jakovlev, 1884, already known from other Iranian provinces, is recorded from Kurdistan province for the first time.

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## ПРВИ НАПАЗ *BRACHYCOLEUS THORACICUS* PUTON, 1892 (HEMIPTERA, MIRIDAE) У ИРАНУ

Сади Мохамеди, Реза Хосеини и Јалил Хајиздех

### Извод

Фаунистичка истраживања фамилије Miridae обављена су у западном делу Курдистана у периоду од 2016. до 2017. године. Нађене су две врсте рода *Brachycoleus* Fieber. *B. thoracicus* Puton, 1892 је нова за фауну Ирана, а *B. lineellus* Jakovlev, 1884 је нова за фауну Курдистана. Детаљно су описане морфолошке карактеристике врста и дате су фотографије станишта на којима су уловљене. Упоредјујући опис типичне врсте *B. thoracicus* из Сирије (Wagner, 1974) са примерцима који су уловљени у Курдистану уочена је разлика. Примерци из Курдистана су црвенкасто браон са тамним шарам на хемиелитрама и по опису ближе *Brachycoleus thoracicus coccineus* Horváth, 1901. Ова подврста није прихваћена у Каталогу Heteroptera Палеарктика (Kerzhner & Josifov, 1999).

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